

10/598076

# Document made available under the Patent Cooperation Treaty (PCT)

International application number: PCT/IL05/000207

International filing date: 20 February 2005 (20.02.2005)

Document type: Certified copy of priority document

Document details: Country/Office: IL  
Number: 160468  
Filing date: 19 February 2004 (19.02.2004)

Date of receipt at the International Bureau: 31 March 2005 (31.03.2005)

Remark: Priority document submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b)



World Intellectual Property Organization (WIPO) - Geneva, Switzerland  
Organisation Mondiale de la Propriété Intellectuelle (OMPI) - Genève, Suisse

IL 05/207



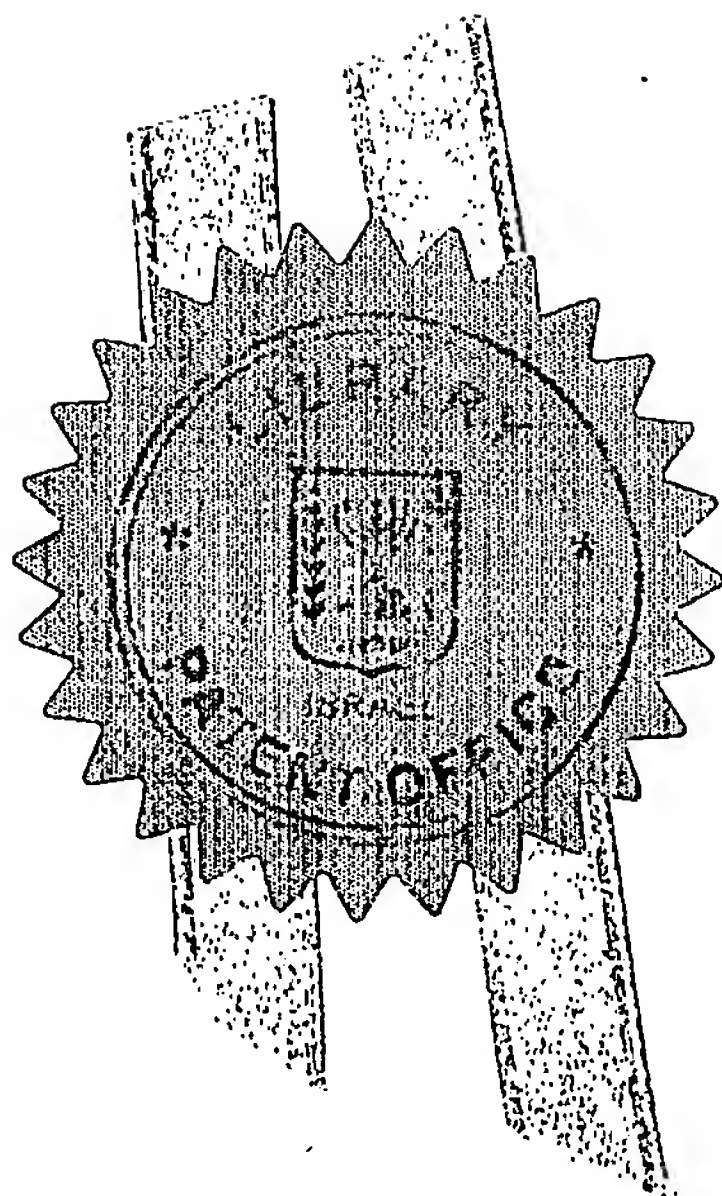
מדינת ישראל  
STATE OF ISRAEL

Ministry of Justice  
Patent Office

משרד המשפטים  
לשכת הפטנטים

This is to certify that  
annexed hereto is a true  
copy of the documents as  
originally deposited with  
the patent application  
particulars of which are  
specified on the first page  
of the annex.

זאת לתעודה כי  
רצופים בזה העתקים  
נכונים של המסמכים  
שהופקדו לכתחילה  
עם הבקשה לפטנט  
לפי הפרטים הרשומים  
בעמוד הראשון של  
הנספח.



Commissioner of Patents

נתאשר  
Certified

לשימוש הלשכה  
For Office Use

חוק הפטנטים, תשכ"ז-1967  
PATENTS LAW, 1967-5727

מספר: Number	160468
תאריך: Date	19-02-2004
הוקדם/נדחה Ante/Post-dated	

בקשה לפטנט  
PATENT APPLICATION

אני, (שם המבקש, מענו - ולגבי גוף מאוחד - מקום התאגדותו)  
I (Name and address of applicant, and, in case of body corporate, place of incorporation)

אסף חלמיש  
Asaf Halamish  
רח' שאננים 10

10 Shaananim street

כרכור 37063

Karkur 37063

I am The Inventor

Owner, by virtue of

בעל אמצאה מכח היותי הממציא

ששמה הוא:

of an invention, the title of which is:

כיסוי סטרילי לידיית של מנורת ניתוח

(בעברית)

(Hebrew)

STERILE HANDLE COVER FOR SURGICAL LAMP

(באנגלית)

(English)

hereby apply for a patent to be granted to me in respect thereof.

מבקש בזאת כי ינתן לי עליה פטנט.

*בקשה חלוקה - Application for Division		*בקשה פטנט מוסף - Application for Patent of Addition	*דרישת דין קדימה Priority Claim		
מבקשה פטנט from application	לבקשה/לפטנט to Patent/Appl.	מספר/סימן Number/Mark	תאריך Date	מדינת האיגוד Convention Country	
No. _____ dated _____	No. _____ dated _____				
*ייפוי כח: כללי/מיוחד - רצוף בזה / עוד יוגש P.O.A.: general / specific - attached / to be filed later-					
הוגש בעניין Has been filed in case					
המען למסירת הודעות ומסמכים בישראל Address for Service in Israel					
אסף חלמיש רח' שאננים 10 כרכור 37063					
חתימת המבקש Signature of Applicant			שנה of the year	בחודש of	היום This
[Signature]			2004	2	2

סימוכין:

REFERENCE:  
טופס זה, כשהוא מוטבע בחותם לשכה הפטנטים ומושלם במספר ובתאריך ההגשה, הינו אישור להגשת הבקשה שפרטיה רשומים לעי  
us form, impressed with the Seal of the Patent Office and indicating the number and date of filing, certifies the filing of the  
plication, the particulars of which are set out above.

מחק את המיותר Delete whatever is inapplicable

## Sterile handle covers

### Abstract

Disposable sterile handle covers for surgical lamps are made up of a relatively thin flexible sheet bonded to and protruding through a thin plastic skirt. The skirt has teeth protruding from it in order to hold the lamp handle. A plurality of teeth are protruding from the skirt toward the lamp handle and end at different radii to hold different sizes of lamp handles. The skirt provides insulation from the heat generated by the lamp and eliminates the possibility, for the lamp operator, of touching the lamp handle and contaminating it.

---

Inventors: Asaf Halamish, Shaananim 10, Karkur 37063, Israel  
Dror Mizra  
Yosi Shachar  
Benjamin Spenser

App. No.:

Filed:

Field of Search:

16/110.5, 111 R, 114 R, DIG. 12, DIG. 18, DIG.  
19, DIG. 24, DIG. 25 362/399, 400, 457, 804, 33  
493/344, 446, 449

---

### References Cited

---

#### U.S. Patent Documents

<u>D313670</u>	Jan., 1991
<u>4559671</u>	Dec., 1985
<u>4605124</u>	Aug., 1986
<u>4646205</u>	Feb., 1987
<u>4795669</u>	Jan., 1989
<u>4844252</u>	Jul., 1989
<u>4878156</u>	Oct., 1989
<u>4974288</u>	Dec., 1990
<u>4975826</u>	Dec., 1990
<u>4976299</u>	Dec., 1990
<u>5036446</u>	Jul., 1991
<u>5065296</u>	Nov., 1991
<u>5156456</u>	Oct., 1992
<u>5469600</u>	Nov., 1995
<u>5884996</u>	March, 1999

---

## *Description*

---

### FIELD OF THE INVENTION

The present invention relates to disposable sterile handle covers for handles on medical or surgical equipment, particularly , handle covers for surgical lamps.

### BACKGROUND OF THE INVENTION

Medical equipment, particularly operating room equipment, must be kept in sterile condition. While many surgical instruments can be removed from the operating room after each procedure to be cleaned and sterilized, large or sensitive instruments, equipment and operating room fixtures cannot be easily moved. For example, devices such as surgical lamps cannot be removed from the operating room after each procedure. These devices, however, are in constant use and must be sterilized after each procedure. The handles of the lamps are of special concern because they receive substantial use both during and between procedures. Lamp handles are typically generally cylindrical projections with a conical skirt. The conical skirt provides insulation from the heat generated by the lamp, a resting point for the hand for increased leverage when adjusting the position of the lamp and a stop to prevent the hand from sliding beyond the handle where it might contact other portions of the lamp structure and contaminate it.

In the past, surgical lamps have been sterilized between procedures by spraying the device with an antiseptic solution. This procedure does not enable sufficient sterilization. The next step was the invention of reusable detachable light handle, that was sterilized separately in an autoclave before each surgical procedure. The disadvantage is the inconvenience of such a sterilization procedure and the sterilization process wears down the handles, which are usually made of plastics, rapidly.

The common solution today is disposable handle covers, which are attached to the light handle before an operation and disposed of after each use. Examples of such covers are included in U.S. Pat. Nos. 4,976,299 issued to Bickelman and 4,605,124 issued to Sandel et al. These patents disclose disposable covers for light handles composed of a flexible plastic or rubber. The covers are molded to conform closely to the handle, including the conical skirt. The main disadvantage of such covers is that, in most cases, there is a need to replace the original lamp handle by a special handle, which is made to fit the disposable handle cover. This process is expensive and causes replacement of a well designed handle by another handle with a compromised design. Another difficulty associated with such covers is that they are typically held in place with adhesives. After repeated use, the handle becomes unusable due to buildup of adhesive residue and it must be replaced. Alternatively, the cover may be made to closely conform to the shape of the handle and so be held in place by friction. In order to remain securely attached, however, the cover must conform so closely to the handle



that application and removal of the cover may be difficult. Also, the conical skirt portion of the handle, while providing insulation and leverage, provides an additional surface for contamination, thus increasing the complexity of the disinfecting process. If the circular skirt portion were eliminated, however, the skirt portion of a typical disposable cover would be too thin and flexible to provide the desired insulation, leverage and hand stop functions. Furthermore, disposable covers are typically made of relatively non-resilient materials and, as such, may only be used on handles of a particular size. Because handles come in a variety of sizes, a variety of different sized handle covers must be provided. This increases the manufacturing cost of such covers, as different molds must be made for each size of handle cover. Hospital procedures are also complicated by the need to track and maintain inventory of multiple cover sizes.

Alternatively, the entire handle may be disposed of and replaced after each use, as disclosed in U.S. Pat. No. 4,974,288 issued to Reasner. This approach, however, is more costly as the portion being replaced, rather than being a thin plastic cover, is instead a rigid structural element of the lamp. Furthermore, the manufacturing of such a device is more costly as it requires complex molds and molding processes. Furthermore, a variety of different sized handles must be provided. Hospital procedures are also complicated by the need to track and maintain inventory of multiple handles.

#### SUMMARY OF THE INVENTION

The present invention consists of a handle cover comprised of a flexible handle cover sleeve for covering the light handle and a rigid skirt. The skirt is of conical shape relatively thin material with teeth protruding toward the axis symmetrical line. The teeth are of different lengths. The aperture bore is larger than the largest handle diameter it's made to hold. This allows the handle cover to be used on handles falling within a relatively broad range of sizes. The attachment of the handle cover to the handle is done by friction between the said teeth and the handle. The different sizes of teeth hold a large range of handle sizes, thus production and inventory costs are reduced and more important -- the hospital does not need to hold different covers inventory.

A thin flexible sheet or "handle cover sleeve" is bonded to the skirt or mechanically attached to it by an additional ring. This ring has a plurality of teeth protruding to the center axis. The handle cover sleeve is folded in between the two layers of teeth. Inserting the handle cover on the light handle will pull out the handle cover sleeve while the ring teeth will make sure that the handle cover sleeve is spread tidally, smoothly and to the required length. Thus, when a handle is inserted through the aperture, it is completely enveloped by the handle cover sleeve, creating a fully sterile field. The cover is retained on the handle by means of friction between the skirt teeth and the handle. Because there are different sizes of teeth, in case of a small diameter light handle, only the long teeth are holding the skirt on the handle. In case of a large handle -- the long teeth are bent and the majority of the friction is achieved by the shorter teeth.

The skirt and the ring holding the handle cover sleeve are manufactured by injection molding or a similar process. The handle cover sleeve is made to shape by welding or gluing it from a sheet.

Accordingly, it is an object of the present invention, to provide a sterile disposable handle cover for use with surgical lamps.

Another object of the invention is to provide a sterile disposable handle cover that can be used on handles of various sizes.

Another object of the present invention is to provide a sterile disposable handle cover for use with surgical lamps, which includes a rigid skirt for providing leverage in the absence of a permanent handle base portion.

Another object of the present invention is to provide a sterile disposable handle cover for use with surgical lamps, which includes a rigid skirt for providing insulation from the heat generated by the lamp.

Other objects, features and advantages of the present invention will become apparent with reference to the remainder of the written portion and the drawings of this application.

#### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the surgical lighting fixture system embodying my invention.

FIG. 2 is a perspective view of the cover of the present invention prior to installation on a lamp handle.

FIG. 3 is a perspective view of the cover of the present invention prior to installation on a lamp handle from a different angle

FIG. 4 is a top view of the present invention.

FIG. 5 is a cut view at line A-A as showed in fig 4

FIG. 6 is a detail view showing the connection between handle cover sleeve, holding ring and the skirt.

FIG. 7 is a detail view showing the connection between handle cover sleeve, holding ring and the skirt according to another embodiment of the invention.

FIG. 8 is a partially sectioned view of an assembled light handle and a handle cover.

#### DETAILED DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates. A surgical lighting fixture 10 comprised of a body 14 and having a manual handle and cover assembly as shown in no. 16 which is meant to be used by a surgical attendant 18. The lighting structure is suspended over the head of the surgical attendant performing the surgical procedure. As can readily be seen in FIG. 1, the surgical attendant may make necessary adjustments to the lighting fixture orientation, including the angle of light incidence by use of the cover and handle assembly 16.

Referring to FIG. 2 and FIG. 3, the handle covers have a skirt 20 and a handle cover sleeve 30.

The skirt has plural teeth 22 starting from the same diameter and having different lengths. The light handle is to fit the bore 26 of the skirt.

The handle cover sleeve 30 protrudes from the skirt and ends at a closed end 32. The length of the handle cover sleeve is made to fit the longest light handle it's meant to cover.

Referring to FIG. 4, the teeth 22 are longer than teeth 24 which are longer than teeth 26.

The teeth 42 are at a different level than the teeth 22,24,26. These teeth are holding the handle cover sleeve 30 folded between the teeth 42 and the teeth 22,24,26.

FIG. 5 illustrates a cut view along the middle of the handle showing the connection of the skirt 20 and the handle cover sleeve 30 by the ring 40.

FIG. 6 illustrates a detailed view from the section illustrated in fig 5, showing the handle cover sheet 30 folded between the teeth 22 of the skirt 20 and the teeth 42 of the ring 40. The folds 34 are made to enable the handle cover sleeve 30 to unfold in order to cover the light handle to its full length. The ring 40 has a radial groove 44, which fits tightly in a radial rib 28 of the skirt 20. The open section 36 of the handle cover sleeve 30 is held tightly in-between the rib 28 and the groove 44.

Fig. 7 illustrates another way of holding the skirt 20 to the ring 40 and the handle cover sheet 30. The skirt 20 has a radial rib 29 that holds tightly the upper section 46 of the ring 40. The handle cover sleeve is squeezed between the radial rib 29 and the upper section 46 of the ring 40. This embodiment is easier to make by mould.

FIG. 8 illustrates the invention assembled on a light handle 16. While pushing the light cover on the light handle, the teeth 22, 24, 26 are bent according to the light handle diameter. If the diameter is big, as illustrated in this figure, then the teeth 22, which are longer, are bent extensively and the teeth 26 add enough friction force to hold the cover handle in place. In case of a small diameter light handle – the teeth 26 are not long enough to hold it and the teeth 22 will bend slightly to sustain the friction needed to hold the light cover to the light handle.

The teeth 42 of the ring 40 will bend as needed and will let the handle cover sleeve 30 protrude as much as needed to cover the whole length of the light handle.

---

## CLAIMS

---

I claim the device as described in the description, detailed description and figures of the embodiment options.



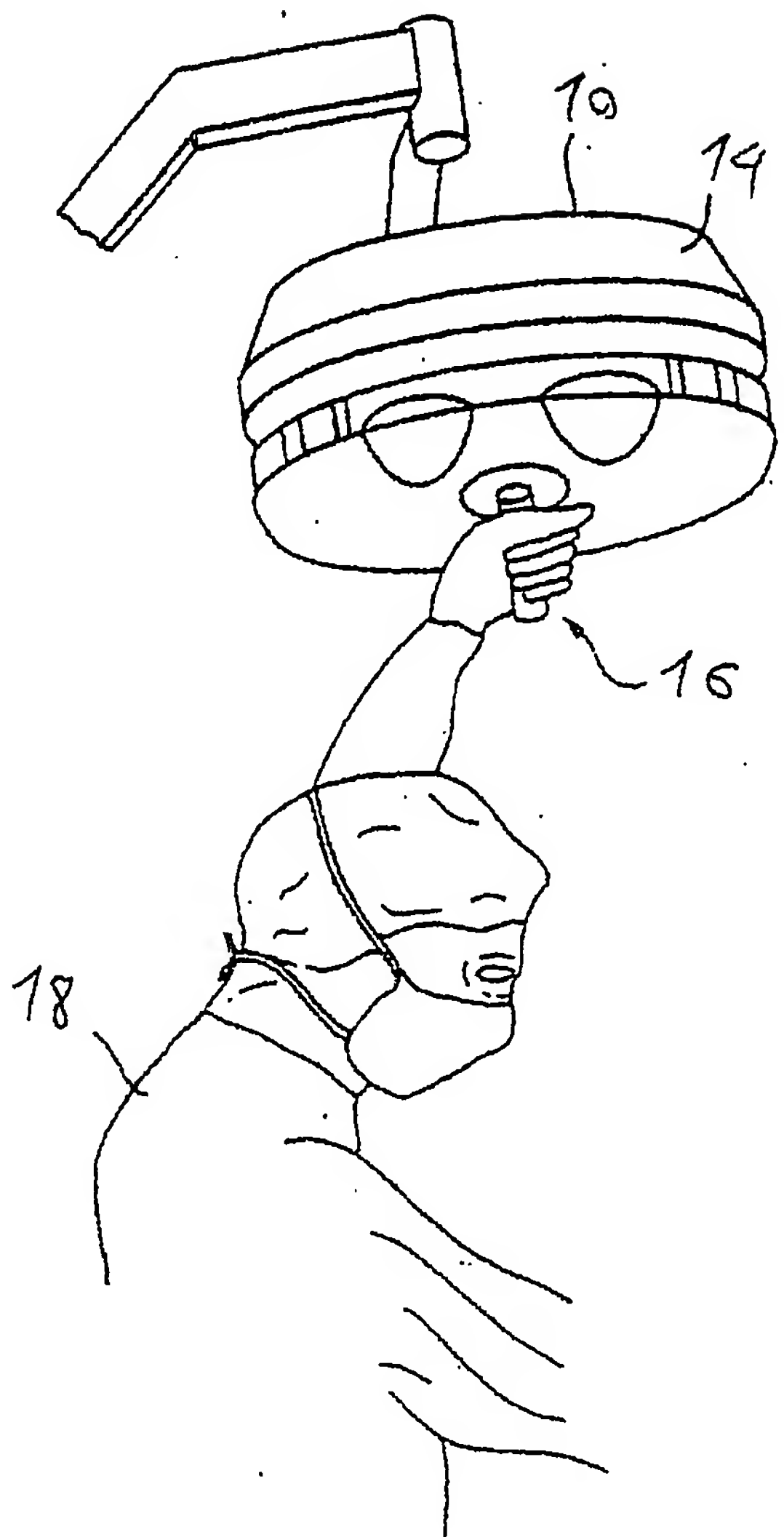


FIG 1

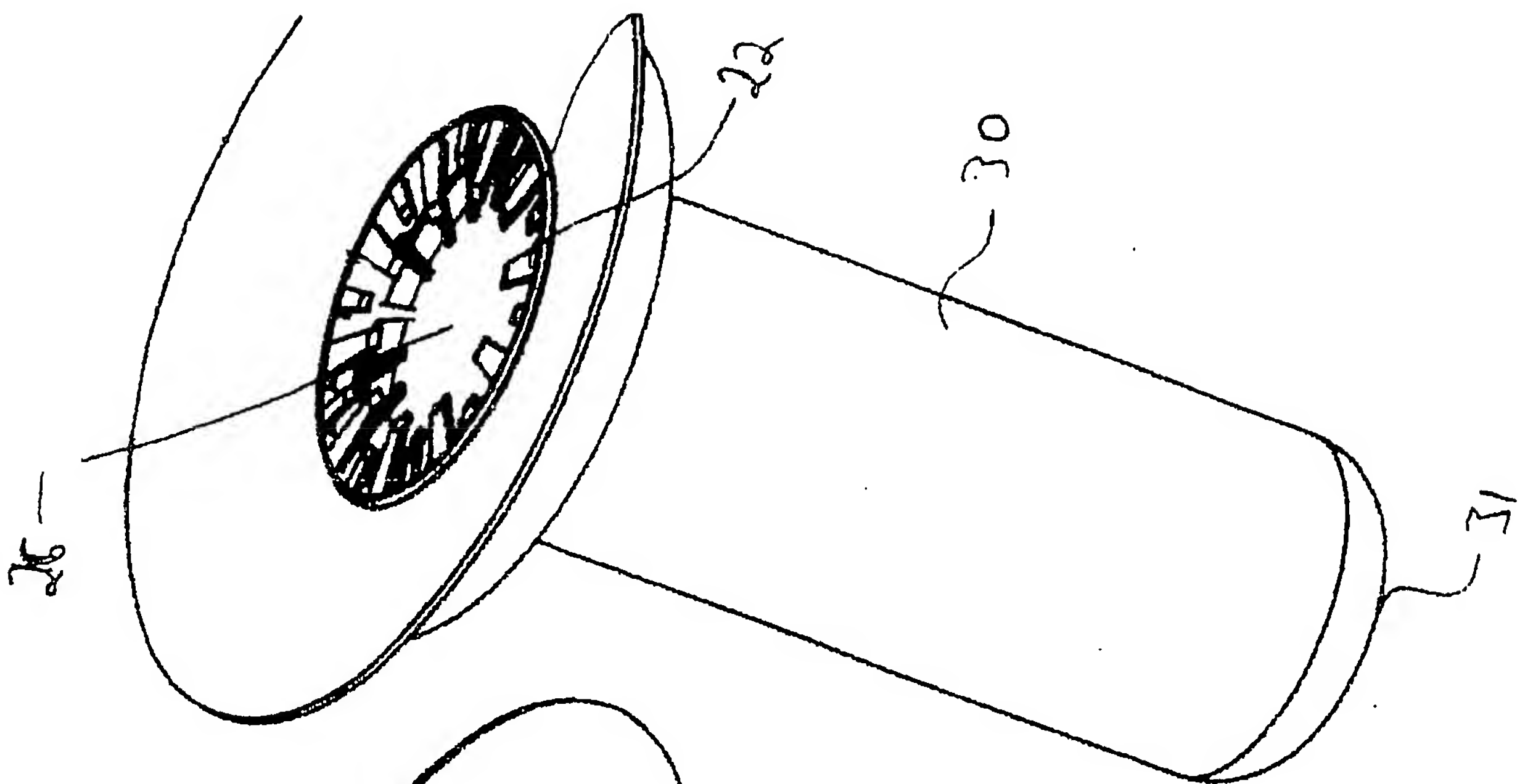


FIG. 3

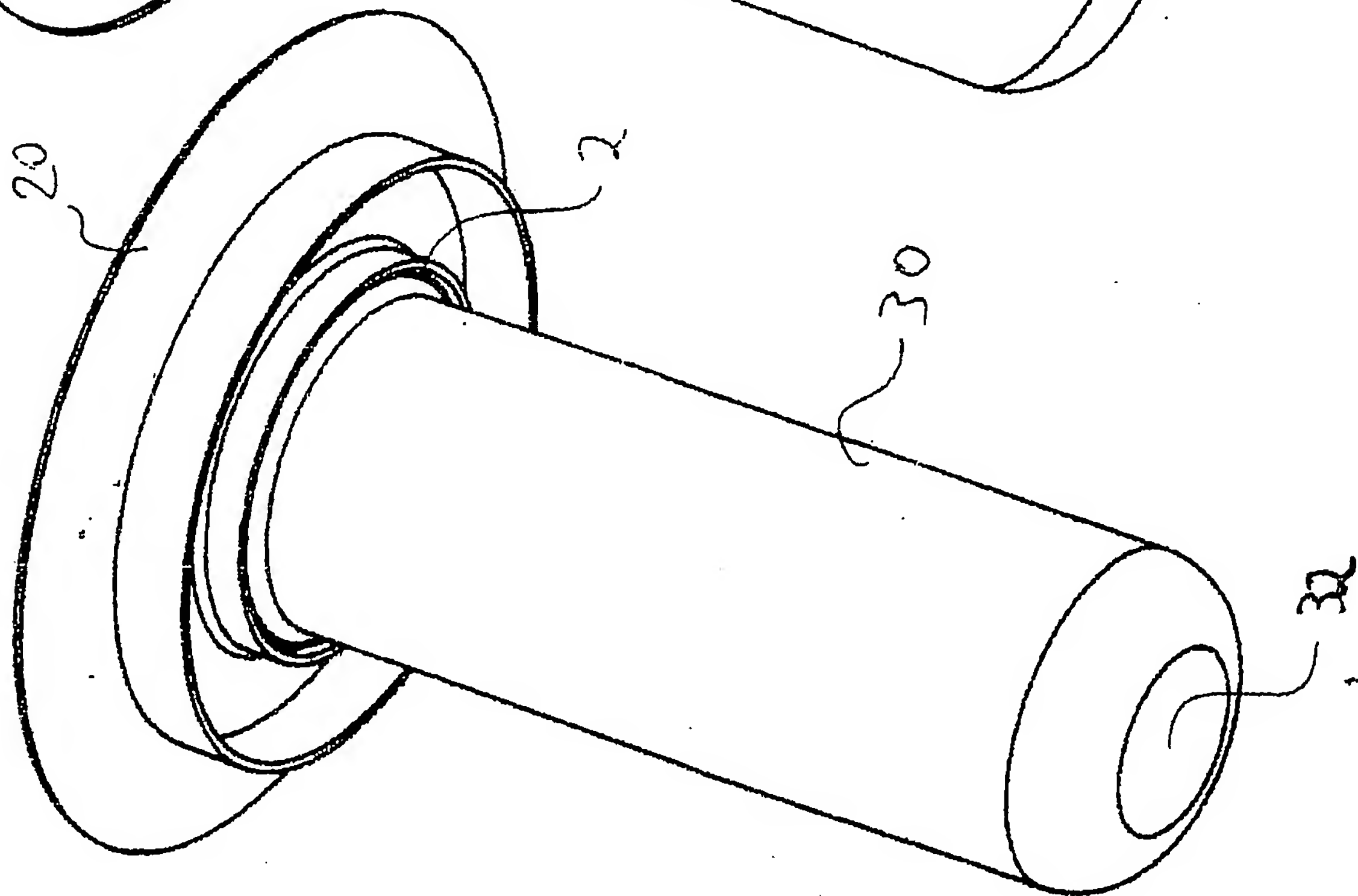


FIG. 2

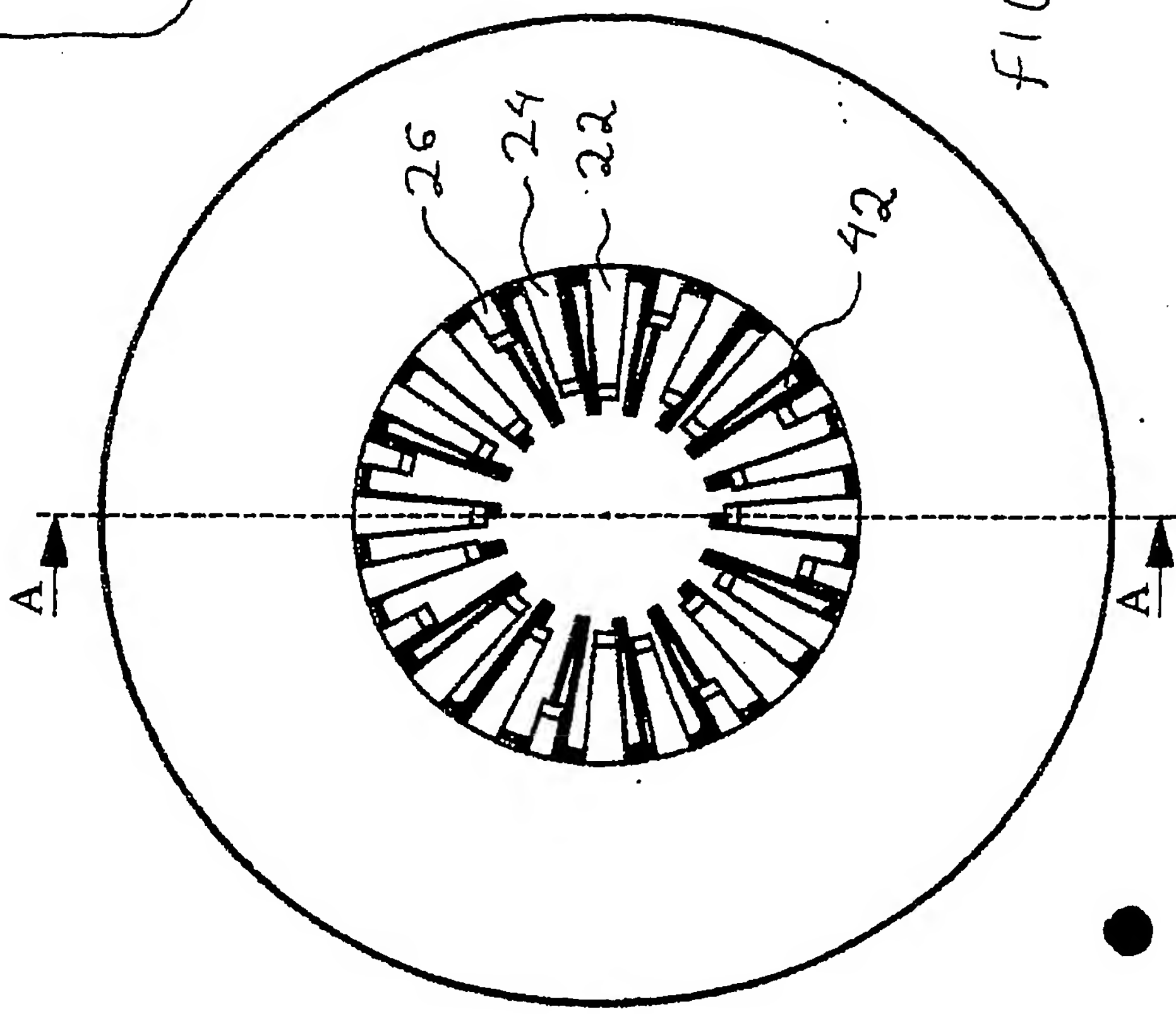


FIG 4

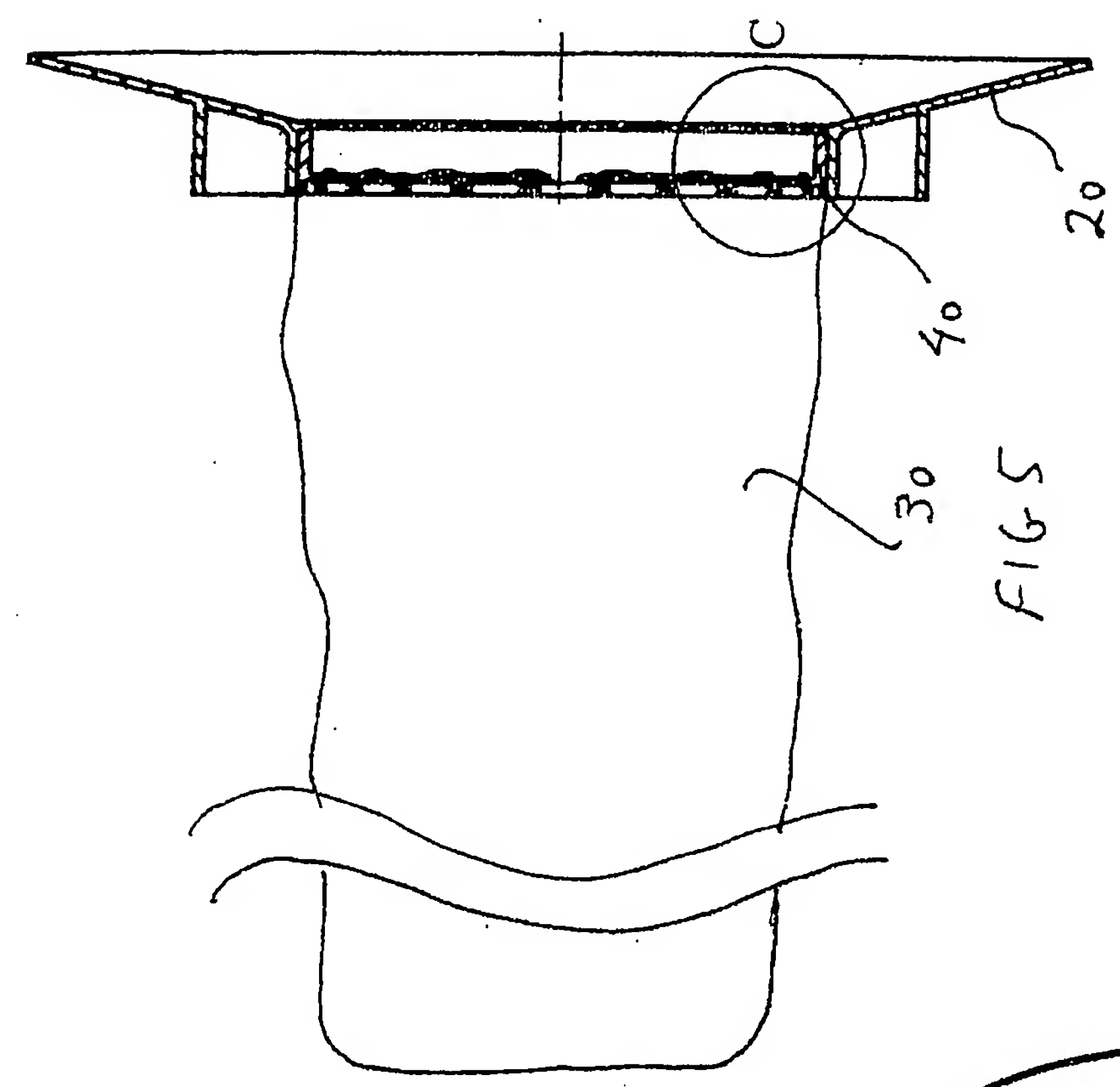


FIG 5

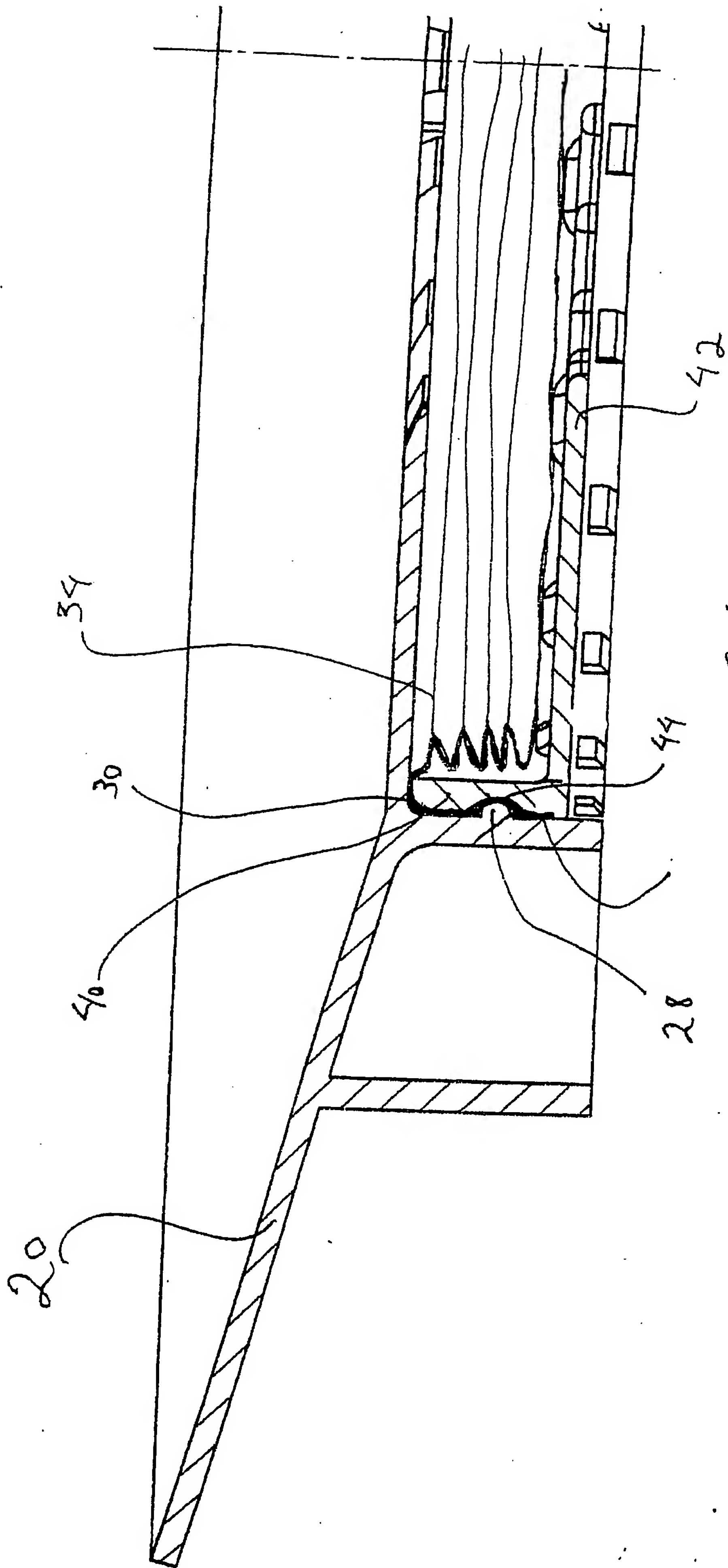
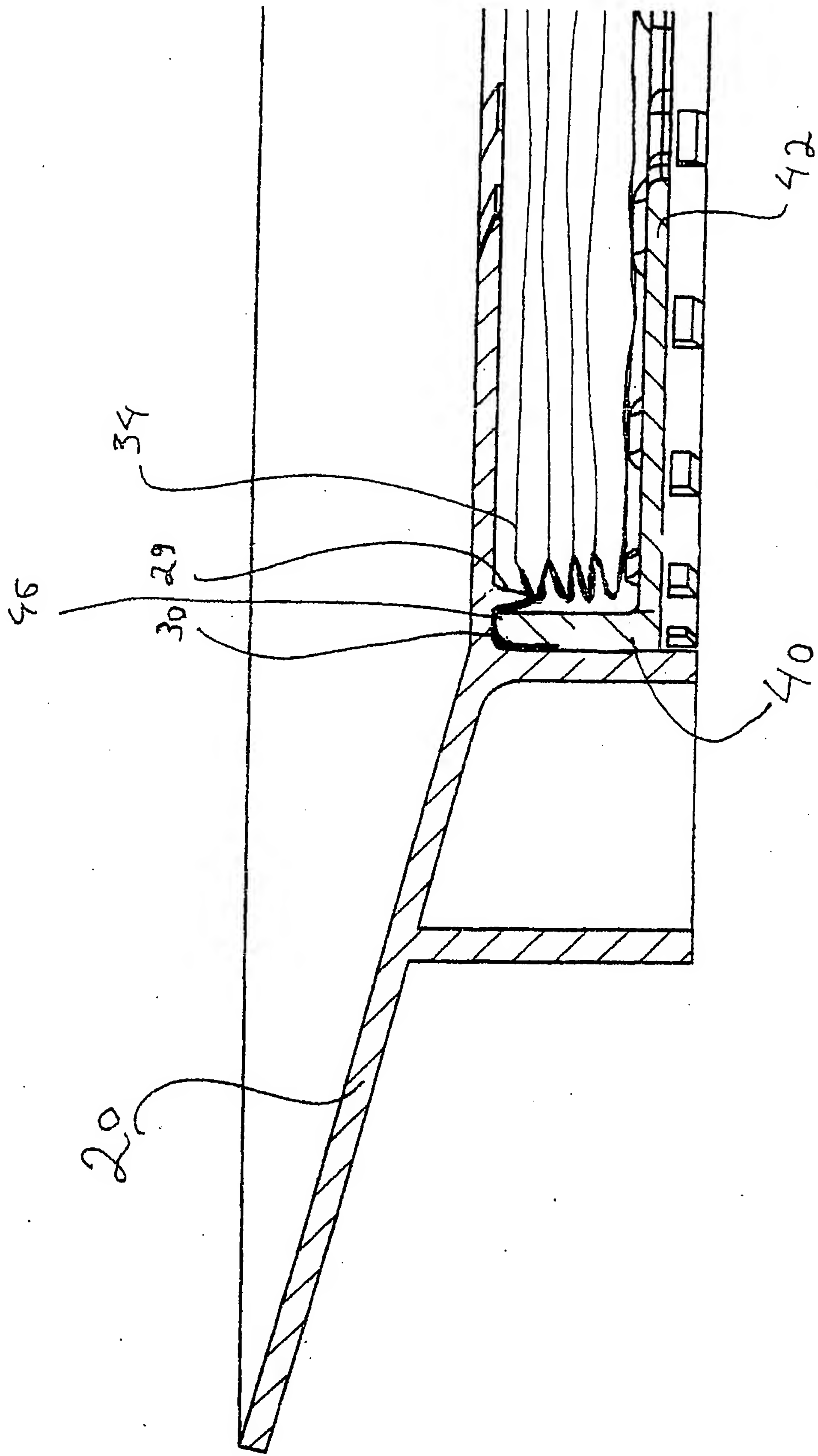


FIG 6





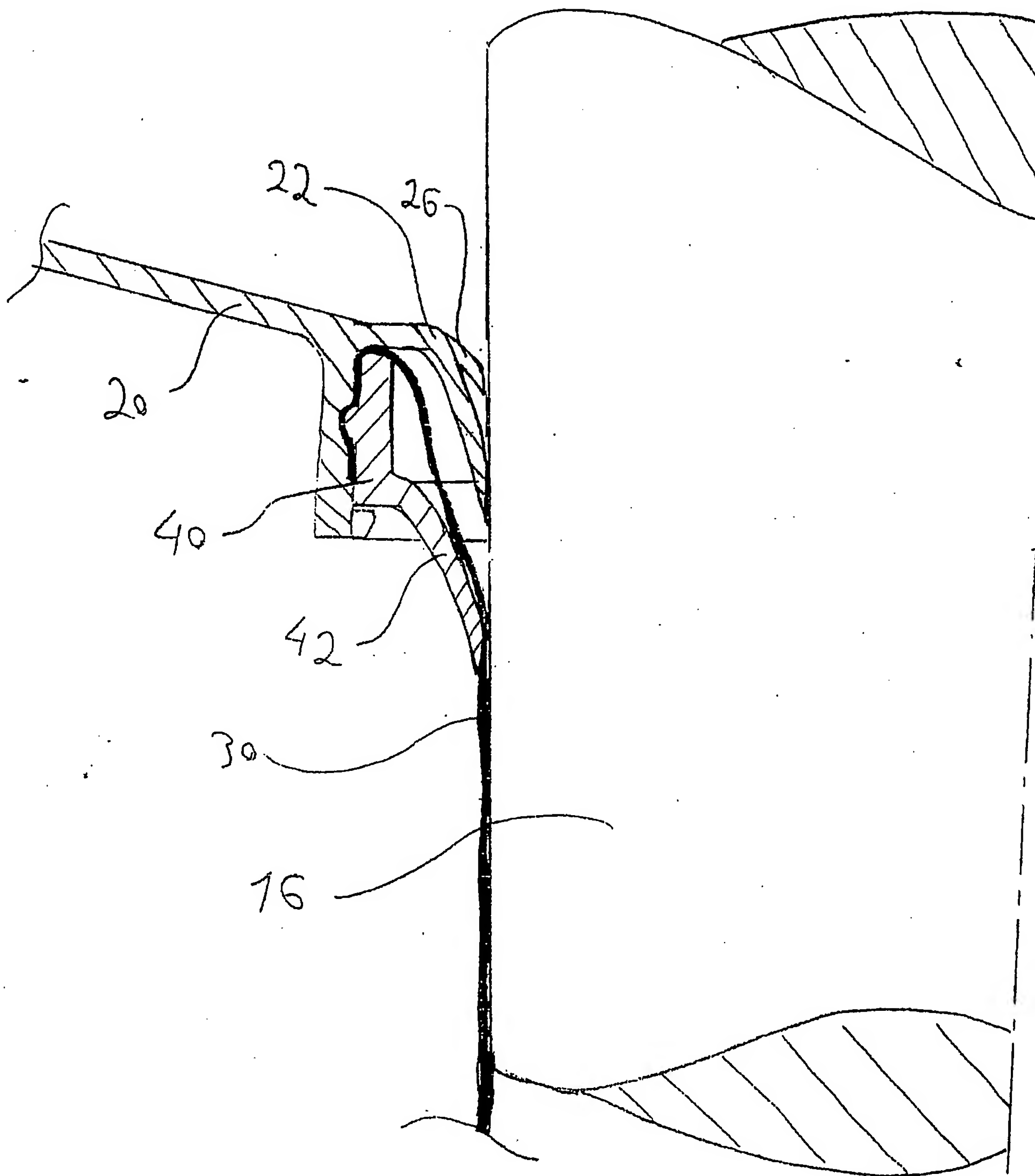


FIG 8

From the INTERNATIONAL BUREAU

**PCT**NOTIFICATION CONCERNING  
SUBMISSION OR TRANSMITTAL  
OF PRIORITY DOCUMENT

(PCT Administrative Instructions, Section 411)

To:

TSIVION, Yoram  
P.O.Box 1307  
37111 Pardes Hanna  
ISRAËL

Date of mailing (day/month/year) 06 April 2005 (06.04.2005)	
Applicant's or agent's file reference 104 05 01 PC	IMPORTANT NOTIFICATION
International application No. PCT/IL05/000207	International filing date (day/month/year) 20 February 2005 (20.02.2005)
International publication date (day/month/year)	Priority date (day/month/year) 19 February 2004 (19.02.2004)
Applicant HALAMISH, Asaf et al	

- By means of this Form, which replaces any previously issued notification concerning submission or transmittal of priority documents, the applicant is hereby notified of the date of receipt by the International Bureau of the priority document(s) relating to all earlier application(s) whose priority is claimed. Unless otherwise indicated by the letters "NR", in the right-hand column or by an asterisk appearing next to a date of receipt, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
- (If applicable)* The letters "NR" appearing in the right-hand column denote a priority document which, on the date of mailing of this Form, had not yet been received by the International Bureau under Rule 17.1(a) or (b). Where, under Rule 17.1(a), the priority document must be submitted by the applicant to the receiving Office or the International Bureau, but the applicant fails to submit the priority document within the applicable time limit under that Rule, the attention of the applicant is directed to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
- (If applicable)* An asterisk (\*) appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b) (the priority document was received after the time limit prescribed in Rule 17.1(a) or the request to prepare and transmit the priority document was submitted to the receiving Office after the applicable time limit under Rule 17.1(b)). Even though the priority document was not furnished in compliance with Rule 17.1(a) or (b), the International Bureau will nevertheless transmit a copy of the document to the designated Offices, for their consideration. In case such a copy is not accepted by the designated Office as the priority document, Rule 17.1(c) provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

<u>Priority date</u>	<u>Priority application No.</u>	<u>Country or regional Office or PCT receiving Office</u>	<u>Date of receipt of priority document</u>
19 February 2004 (19.02.2004)	160468	IL	31 March 2005 (31.03.2005)

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No. +41 22 740 14 35	Authorized officer  Olaiz Alicia  Facsimile No. +41 22 338 71 30 Telephone No. +41 22 338 9288
---	---